

Cyprus Thompson Creek

Post Office Box 62  
Clayton, Idaho 83227  
Telephone (208) 838-2200

July 2 , 1987

Mr. C. Gregory Johnson  
District Ranger  
Yankee Fork Ranger District  
HC67 Box 650  
Clayton, ID 83227

Re: Tailings Impoundment Water Balance

Dear Mr. Johnson:

Cyprus Thompson Creek's tailings impoundment in the Bruno Creek drainage has a positive water balance. During a twelve month milling operation, this water accumulation has very little effect upon the tailings impoundment. Concern exists that with the reduced production rate, the positive water balance will accumulate water at such a rate that the two criteria for water balance control: a minimum free board of 25 feet and a minimum beach of 250 feet from crest to pond will not be maintained. Cyprus has identified a number of steps to help reduce the positive water balance with hopes of maintaining zero discharge. Per Pat Green's request, below is a summary of the steps Cyprus plans to take to reduce the water inventory.

All existing RIS diversion structures or catchment basins leak. The collection efficiency of all basins will be improved by installing a cutoff trench above the catchment basins. The cutoff trench, creek bed and actual catchment basin will then be lined with 20 mil PVC plastic liner.

Six drainages along the RIS structure have no catchment basins in them to divert runoff water into the RIS system. Cyprus will be constructing lined catchment basins for better runoff control, along with diversion structures in each drainage. Two springs surface below the RIS line. Collection sumps will be dug to catch this water and place it into the RIS system. A concrete drop box will be placed in the sump and a pump mounted to the drop box. The discharge line will be plastic pipe laid on ground surface.

The 7400 diversion ditch is also being upgraded. After cleaning the existing ditch of rock and debris, a 42 inch half round CMP culvert will be placed in the ditch. The existing liner will remain. The half round will be bedded and secured as a figure I. The slope of the ditch where it drops from 7385 to 7300 foot elevation will be reduced and 90 degree curve removed. Several catchment basins will also be installed along the 7400 ditch.

C. Gregory Johnson  
Page 2

As a final effort to reduce the water inventory, an enhanced evaporation system is being designed for the paddocks area (Attachment I). This system will be threefold in that it will reduce blowing tailings, reduce oxidation of exposed tailings, along with evaporating excess water.

This completes the actions Cyprus is taking in the tailings area to help reduce the positive water balance. Cyprus would like to assure you that we will keep disturbance to a minimum and try to keep disturbance within the right of way of each diversion structure. Thank you for your cooperation in this matter and feel free to call if you have any questions about the above.

Sincerely,

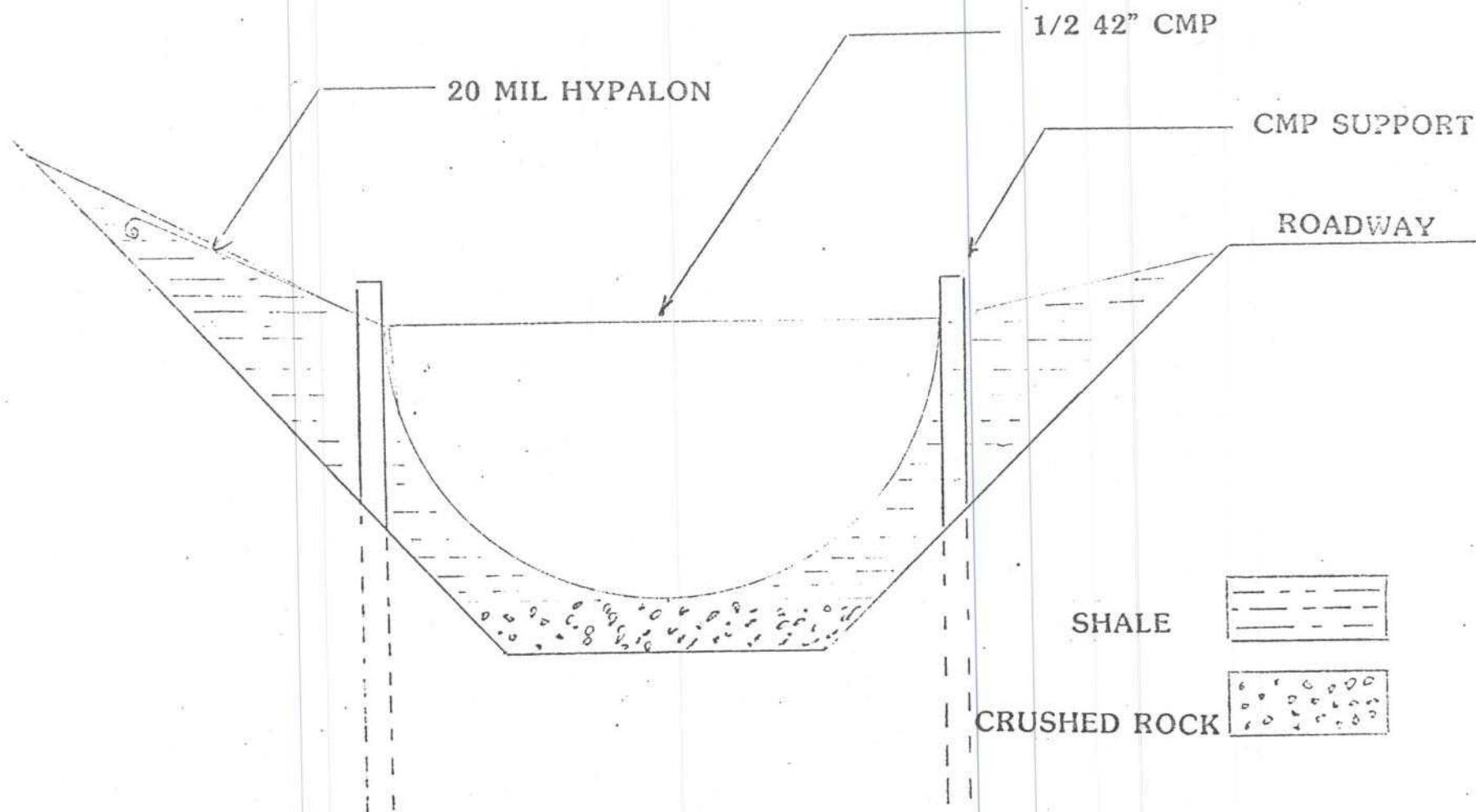
*P. H. Fitch* for C.G.J.  
Christopher Janes

CGJ:bw

**CYPRUS**

Figure 1

# TYPICAL X-SECTION



1" = 1.0'

## Attachment 1

To

Will Wyland

Date

June 30, 1987

From

Jim Kenyon

Subject

TAILING SPRAY DISSIPATION SYSTEM

In order to achieve a negative water balance at the Tailing Dam under varying production rates, either inflow must be reduced or the impoundment water must be dissipated. Upon recommendation from S.R.K. consultants, a water spray dissipation system has been designed. This system has the potential of reducing the impoundment by 500 gpm through evaporative land applications. By applying this water to the two upper paddock areas only the existing S.R.D. will prevent downstream migration. The rate of application should be at a rate to prevent ponding and thus will vary somewhat due to weather conditions. The estimated materials cost is \$18,000, with installation labor an approximate \$18,000 additional cost.

The installation will require a pump, irrigation pipe and sprinklers. The purpose of the sprinklers is to saturate the surface of the paddock sands without ponding. It is not atmospheric evaporations but the temperature difference between the water droplets and the contacted sand that will drive off most of the moisture. Thus due to the heat gain required by the paddock sands, the two paddocks should have alternating irrigation schedules to be effective. It is S.R.K.'s opinion that an application rate of 0.005 gpm/ft<sup>2</sup> will be appropriate. The attached drawing shows the planned layout.

The initial pumping location will be from the weir box on the North-east corner of the S.R.D. This may later be moved if the S.R.D. level changes significantly. With an estimated 1000 gpm flow from this weir and an irrigation pumping rate of 500-600 gpm from this weir, the pond level may drop. If this affects the mill water supply, a move will be required to allow pumping directly from the Tailing Dam.

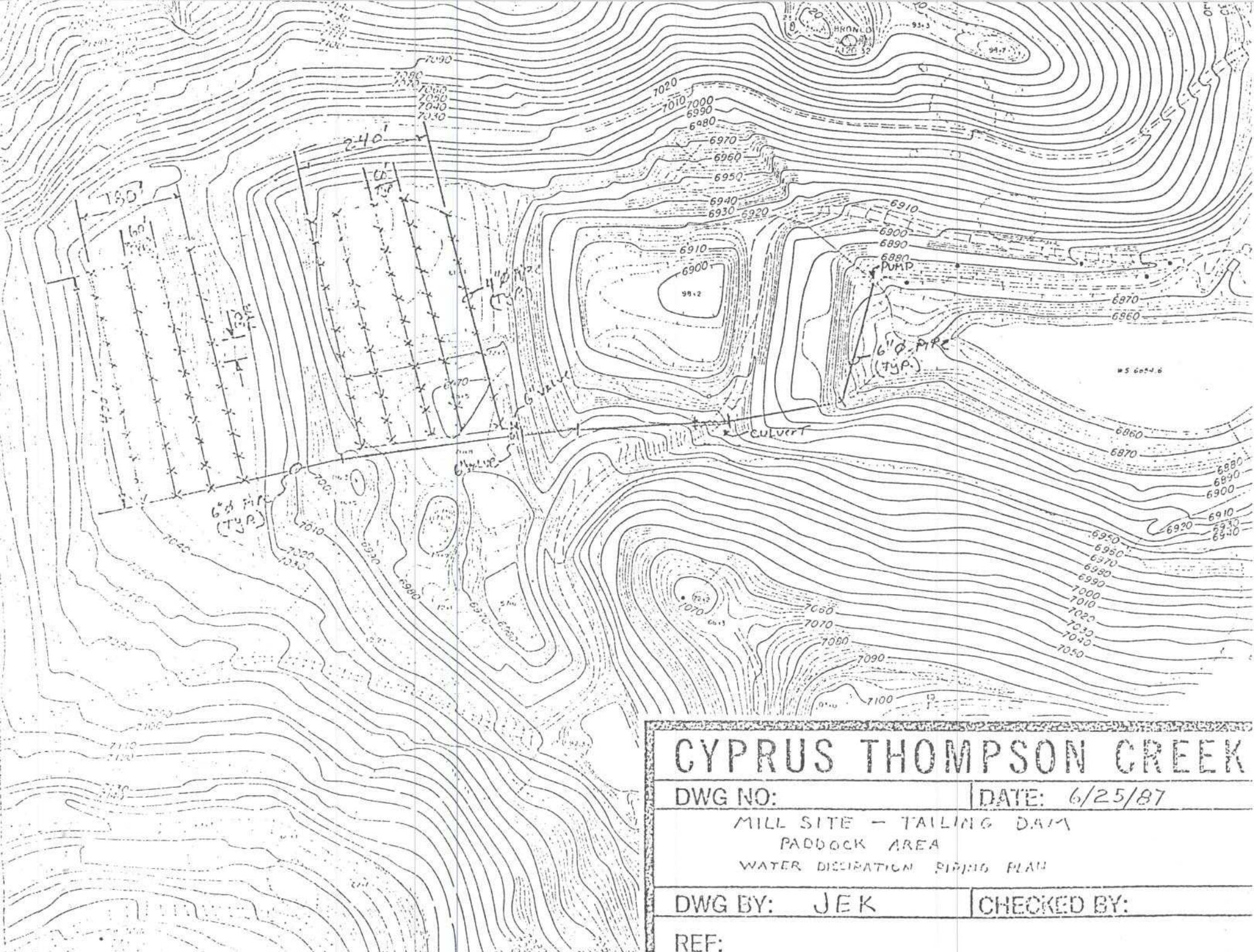
The absolute costs and availability of materials is being investigated by the Purchasing Department. The only other anticipated preparations needed before installation is to level off the two paddock areas. These areas need to be graded so that the irrigation pipe can be laid flat. This needs to be completed prior to the pipe installation.

JEK/cj

cc:

C. Ammar  
W. Copeland  
B. Doughty  
J. Frost  
G. Granger  
R. Hernandez  
G. Hurless

**CYPRUS**



# CYPRUS THOMPSON CREEK

DWG NO:

DATE: 6/25/87

MILL SITE - TAILING DAM

Paddock Area

Water Diversion Piping Plan

DWG BY: JEK

CHECKED BY:

REF: